Comparisons of Job Characteristics

Focus Occupation: Aerospace Engineers (17-2011)
Associated Occupation: Materials Engineers (17-2131)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 77

Focus Occupation: Aerospace Engineers (17-2011)
Associated Occupation: Materials Engineers (17-2131)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Engineering and Technology	5.7	18.9	21.4	>	Current knowledge level is likely sufficient
Chemistry	4.8	15.3	8.2	<<	Extensive education and/or training may be required
Physics	4.3	10.6	18.7	>>	Current knowledge level is likely more than sufficient
Design	5.2	7.9	19.5	>>	Current knowledge level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Aerospace Engineers (17-2011)
Associated Occupation: Materials Engineers (17-2131)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	13.0	15.3	>	Skill level is likely sufficient
Complex Problem Solving	9.1	12.0	13.5	>	Skill level is likely sufficient
Operations Analysis	5.0	11.7	15.8	>>	Skill level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Aerospace Engineers (17-2011)
Associated Occupation: Materials Engineers (17-2131)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Oral Expression	12.4	15.3	14.6	0	Current ability level may be sufficient
Problem Sensitivity	11.1	14.7	12.5	<	Some improvement in abilities may be required
Deductive Reasoning	10.6	14.2	15.4	0	Current ability level may be sufficient
Written Comprehension	11.0	14.2	16.8	>	Current ability level is likely sufficient
Inductive Reasoning	10.2	13.9	13.8	0	Current ability level may be sufficient
Written Expression	9.8	13.8	13.9	0	Current ability level may be sufficient
Category Flexibility	9.0	11.5	10.5	0	Current ability level may be sufficient
Originality	7.6	10.6	10.6	0	Current ability level may be sufficient
Mathematical Reasoning	6.3	10.2	14.4	>>	Current ability level is likely more than sufficient
Number Facility	6.3	9.2	10.8	>	Current ability level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Aerospace Engineers (17-2011)
Associated Occupation: Materials Engineers (17-2131)

Work Activities	Exclusivity of Activity
Advise clients or customers	19
Advise clients regarding engineering problems	67
Analyze engineering design problems	69
Analyze engineering test data	71
Analyze project proposal to determine feasibility, cost, or time	69
Analyze scientific research data or investigative findings	27
Analyze technical data, designs, or preliminary specifications	47
Analyze test data	64
Calculate engineering specifications	64
Collect scientific or technical data	30
Communicate technical information	4
Compile numerical or statistical data	38
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Coordinate engineering project activities	71
Create mathematical or statistical diagrams or charts	43
Delegate authority for engineering activities	73
Design electronic equipment	74
Design engineered systems	75

Design machines	82
Design manufacturing processes or methods	77
Determine factors affecting production processes	84
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Draw prototypes, plans, or maps to scale	57
Estimate cost for engineering projects	69
Evaluate costs of engineering projects	70
Evaluate engineering data	60
Evaluate manufacturing or processing systems	68
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Follow manufacturing methods or techniques	73
Follow statistical process control procedures	73
Improve test devices or techniques in manufacturing, industrial or engineering setting	75
Lead teams in engineering projects	73
Plan testing of engineering methods	72
Prepare reports	8
Prepare technical reports or related documentation	22
Provide analytical assessment of engineering data	75
Read blueprints	10
Read technical drawings	7
Recommend materials for products	89
Resolve engineering or science problems	46
Test equipment as part of engineering projects or processes	67
Understand engineering data or reports	48
Use computer aided drafting or design software for design, drafting, modeling, or other engineering tasks	58
Use computers to enter, access or retrieve data	3
Use drafting or mechanical drawing techniques	50
Use government regulations	44
Use intuitive judgment for engineering analyses	72
Use knowledge of investigation techniques	16
Use knowledge of materials testing procedures	70
Use library or online Internet research techniques	21
Use long or short term production planning techniques	74
Use mathematical or statistical methods to identify or analyze problems	30
Use project management techniques	47
Use quantitative research methods	35
Use relational database software	26
Use research methodology procedures within manufacturing or commerce	75
Use robotics systems technology	78
Use scientific research methodology	21
Use spreadsheet software	18
Use technical information in manufacturing or industrial activities	67
Use technical regulations for engineering problems	61

Use word processing or desktop publishing software	17
Work as a team member	36
Write business project or bid proposals	48
Write product performance requirements	78

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 79

Focus Occupation: Aerospace Engineers (17-2011)
Associated Occupation: Materials Engineers (17-2131)

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Electrical measuring and testing equipment	7
Fluid mechanics equipment	11
Indicating and recording instruments	2
Industry specific software	1
Laboratory pumps and tubing	23
Length and thickness and distance measuring instruments	2
Light and wave generating and measuring equipment	4
Liquid and gas flow measuring and observing instruments	15
Machine tools	7
Mechanical instruments	14
Metals and metallurgy and structural materials testing instruments	15
Non destructive examination equipment	13
Pneumatic tools	8
Power tools	2
Pressure measuring and control instruments	10
Sound generating and measuring equipment	19
Spectroscopic equipment	10
Viewing and observing instruments and accessories	4

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.